

CLAIMS

What is claimed is:

1. A method for measuring a first phase difference between first and second reflected polarized light signal components, the method comprising the steps of:
 3. transmitting a first incident light signal toward a first object, wherein said first object is one of a magnetic disk and a glass substrate;
 5. separating from a reflected light signal that has reflected off said first object a first mixed reflected polarized light signal component having a first phase and a second mixed reflected polarized light signal component having a second phase that is different from said first phase, wherein said first mixed reflected polarized light signal component comprises both P-polarized and S-polarized light relative to a plane of incidence of said reflected light signal, and wherein said second mixed reflected polarized light signal component comprises both P-polarized and S-polarized light relative to the plane of incidence of said reflected light signal;
 12. detecting a first intensity of said first mixed reflected polarized light signal component;
 13. detecting a second intensity of said second mixed reflected polarized light signal component; and
 15. determining a difference in phase between said first and second mixed reflected polarized light signal components based upon said first and second intensities.
2. The method of claim 1 further comprising the step of:
 2. determining a texture on said first object based upon said difference in phase.

1 3. The method of claim 1, further comprising the step of:
2 determining a thickness of a lubricant on said first object based upon said difference in
3 phase.

1 4. The method of claim 1, further comprising the step of:
2 determining a thickness of a carbon layer of said first object based upon said difference in
3 phase.

1 5. The method of claim 1, further comprising the step of:
2 determining a magnetic characteristic of said first object based upon said difference in
3 phase.

1 6. The method of claim 1, further comprising the step of:
2 polarizing said first incident light signal to generate a first incident polarized light signal
3 component and a second incident polarized light signal component of said first incident light
4 signal, said first and second incident polarized light signal components being orthogonally
5 polarized.

1 7. The method of claim 1, wherein said first and second mixed reflected polarized
2 light signal components are orthogonally polarized.

1 8. The method of claim 1, further comprising the step of:
2 measuring the magneto-optic Kerr effect based upon said difference in phase.

1 9. The method of claim 8, further comprising the steps of:
2 determining a defect exists at a first location on the first object based upon said first and
3 second intensities; and
4 marking said first location to identify said defect.

1 10. The method of claim 9, wherein said marking step further comprises the steps of:
2 moving a mechanical scribe to a position substantially adjacent to said first location;
3 positioning said mechanical scribe at substantially said first location; and
4 marking said first location with said mechanical scribe.

1 11. The method of claim 1, further comprising the steps of:
2 determining a defect exists at a first location on the first object based upon said first and
3 second intensities; and
4 marking said first location to identify said defect.

1 12. The method of claim 11, wherein said marking step further comprises the steps of:
2 moving a mechanical scribe to a position substantially adjacent to said first location;
3 positioning said mechanical scribe at substantially said first location; and
4 marking said first location with said mechanical scribe.

1 13. The method of claim 1 wherein the step of determining a difference includes:
2 determining a difference between said first and second intensities to reduce the effect on
3 at least one measured value of a texture on said first object.

1 14. A system for measuring a first phase difference between first and second mixed
2 reflected polarized light signal components, comprising:

3 a light source for transmitting a first incident light signal toward a first object wherein
4 said first object is one of a magnetic disk and a glass substrate;
5 a polarization splitter for separating from a first reflected light signal, that has reflected
6 off of said first object, the first mixed reflected polarized light signal component having a first
7 phase, and the second mixed reflected polarized light signal component having a second phase
8 that is different from said first phase, wherein the first mixed reflected polarized light signal
9 component comprises both P-polarized and S-polarized light relative to a plane of incidence of
10 said reflected light signal, and wherein the second mixed reflected polarized light signal
11 component comprises both P-polarized and S-polarized light relative to the plane of incidence of
12 said reflected light signal;
13 a first detector for detecting a first intensity of the first mixed reflected polarized light
14 signal component;
15 a second detector for detecting a second intensity of the second mixed reflected polarized
16 light signal component; and
17 a phase determinator for determining a difference in phase between the first and second
18 mixed reflected polarized light signal components based upon said first and second intensities.

1 15. The system of claim 14, wherein said phase determinator comprises:
2 a texture eliminator for determining a difference between said first and second intensities
3 to reduce the effect on at least one measured value of a texture on said first object.

1 16. The system of claim 14, further comprising:
2 a thickness determinator for determining a thickness of a lubricant on said first object
3 based upon said difference in phase.

- 1 17. The system of claim 14, further comprising:
2 a carbon thickness determinator for determining a thickness of a carbon layer of said first
3 object based upon said difference in phase.
- 1 18. The system of claim 14, further comprising:
2 a magnetic identifier for determining a magnetic characteristic of said first object based
3 upon said difference in phase.
- 1 19. The system of claim 14, further comprising:
2 a Kerr effect determinator for measuring the magneto-optic Kerr effect based upon said
3 difference in phase.
- 1 20. The system of claim 19, further comprising:
2 a defect determinator for determining a defect exists at a first location on the first object
3 based upon said first and second intensities; and
4 a mechanical scribe for marking said first location to identify said defect.
- 1 21. The system of claim 20, further comprising:
2 a scribe positioner for moving a mechanical scribe to a position substantially
3 adjacent to said first location before marking said first location.
- 1 22. The system of claim 14, further comprising:
2 a defect determinator for determining a defect exists at a first location on the first object
3 based upon said first and second intensities; and
4 a mechanical scribe for marking said first location to identify said defect.

- 1 23. The system of claim 22, further comprising:
2 a scribe positioner for moving a mechanical scribe to a position substantially
3 adjacent to said first location before marking said first location.
1 24. The system of claim 14, further comprising:
2 a polarizer for polarizing said first incident light signal to generate a first incident
3 polarized light signal component and a second incident polarized light signal component of said
4 first incident light signal, said first and second incident polarized light signal components being
5 orthogonally polarized.